



INNOVATIVE TECHNOLOGIES AND THEIR SIGNIFICANCE

N. X. Yusupova¹, D. B. Nomoanjonova²

^{1,2} teachers of the Higher Mathematics Department of FarPI.

Annotation

Concepts such as innovation in pedagogy, innovative activity, innovative pedagogy, management of innovative processes in education first appeared in the 60s of the 20th century, when the concept of "educational technology" was recognized in the USA and Western European countries. At that time, the center and institute of pedagogical innovations appeared in Europe.

ARTICLE INFO

Article history:

Received 28 may 2022

Revised form 25 june 2022

Accepted 8 july 2022

Key words:

innovation, innovation process.

© 2019 Hosting by Central Asian Studies. All rights reserved.

The word "innovation" is derived from the English language and means "introduction of news".

The concept of "innovation" appeared for the first time in the 19th century as a result of the research of cultural scientists and meant the introduction of elements of one culture into another. This meaning has been preserved in ethnography until now.

20th century, the science of introducing and applying innovations to a field of knowledge emerged. He began to study the rules of introducing technical innovations in the field of product production. In the 1930s, the terms "innovative company policy" and "innovative process" appeared in the USA. In the 1960s and 1970s, empirical tests of innovations implemented by firms and other enterprises in the West became widespread. At the same time, attention is drawn to two main areas of research, each of which has its own theoretical and methodological culture.

Concepts such as innovation in pedagogy, innovative activity, innovative pedagogy, management of innovative processes in education appeared in the 60s of the 20th century, when the concept of "educational technology" was recognized in the USA and Western European countries. At that time, the center and institute of pedagogical innovations appeared in Europe. The analysis of the sources that inform about the emergence of these concepts and the creation of the innovative educational theory shows that these concepts are the reform of the educational system by introducing the technology of the educational system and pedagogical technologies into the educational system. in order to achieve certain success in this regard, it was created as a result of an attempt to form child-friendly relations in the educational process, as a result of the conducted scientific research, pedagogical activity in the second half of the 80s of the last century this is a new scientific direction called the union of creative process and pedagogical innovations. This made it possible to analyze the formation and development process of the teacher's pedagogical activity.

Innovations are of urgent importance and are new approaches formed in one system. They are born on the basis of initiatives and innovations, are promising for the development of educational content, and also have a positive effect on the development of the educational system in general.

Innovation is the end result of using technology, forms and methods, a new approach to solving a problem or a technological process in a certain field of activity or production, which is known to lead to greater success than before.

Today, it is recommended to classify innovations in the educational system as follows:

- Depending on the direction of activity (in the pedagogical process, management).
- According to the description of the introduced changes (radical, modified, combined).
- According to the scale of changes (local, modular, systemic).
- According to the source of origin (internal or external for this team).

Innovation is defined as purposeful changes that introduce new relatively stable elements to a specific social unit, the population of the organization, society, group. This is an innovator.

In the literature on pedagogy, a scheme of the innovation process is given. It covers the following steps:

1. the stage of the birth of new ideas or the emergence of a new concept. It is also called the discovery stage.
2. the stage of inventing, i.e. creating something new.
3. The stage of being able to apply the created innovation in practice.
4. Spreading the news is the stage of its wide application.

Dominance stage of the innovation in a particular field : In this stage, the innovation loses its novelty. A more effective alternative will appear.

The study of the components of innovative processes is studied according to 2 approaches

1. The individual micro-level of innovation. It illuminates some new idea introduced in life.
2. The micro level of interaction of separately introduced news. In this case, as a result of the interaction of separately introduced innovations, one takes the place of the other as a result of their unity, competition and consequence.

In the process of innovation, it is necessary to generate new ideas, create innovation, follow the created innovation and spread it, i.e. apply it. Innovative activity of the teacher is a form of interaction and interaction between the activity of the teacher and the activity of students in the pursuit of improving the quality of education. V.V. Davidov and L.V. The main functions of the innovative activity of the Lankovlar teacher are the following positive changes in the pedagogical process and its components: 1. Changes in the goal

2. Changes in educational content
3. Introducing new tools to education
4. New models of education
5. New methods and methods of education
6. Promote new ideas for student development

The goal of innovation is to get the best result from the spent money or effort. Unlike other spontaneous innovations, innovation is a controlled and controlled change mechanism.

Any innovation in the educational system cannot be an innovation. Therefore, it is necessary to point out the main differences between the concepts of "novation" and "innovation". For this purpose, the exact form,

content, and scope of the reform activity serve as the basis. If the activity is short-term and does not have the quality of a whole system, if it has set itself to change only some elements of a certain system, then we are communicating with innovation. If the activity is carried out on the basis of a certain conceptual approach, we can call it innovation only if its result leads to the development of that system or its result leads to the development of that system or its fundamental change.

The concepts of "innovative opportunity" and "innovative environment" are also included in the main categories of pedagogical innovations. The innovative potential of the school is its ability to create, accept, and implement new things, as well as to get rid of old ones that do not meet the pedagogical goal. Innovative environment is a concrete spiritual and spiritual condition strengthened by a complex of organizational, methodical, psychological measures that ensure the introduction of innovations into the school education process.

The concepts of modernization, modification, rationalization of pedagogical innovations are closely related to the considered concepts.

Modernization (fr. moderne - modern) is aimed at changing the composition and technology of the updated process by introducing various improvements based on the requirements of the time. Modification (fr. modification) refers to changing the appearance of the updated process in order to change it, as a result of which new aspects of the process are revealed.

Rationalization (lat. rational - conscious) is manifested in the improvement of the entire structure of the updated process.

Effective management of the innovation process is carried out by carefully studying its content. Introducing news is a process, which is carried out on the basis of several stages. In pedagogical literature, these stages are shown as follows:

1. the birth of a new idea or the emergence of a new concept;
2. discovery, that is, the creation of innovation;
3. introduction of innovation;
4. dissemination of news;
5. dominance of innovation in a specific field;
6. Reduction of the scale of application of this innovation in connection with the introduction of another innovation.

According to the research results of B.M.Smirnov, N.L.Ponomarev, the pedagogical laws of innovations introduced into the educational process are as follows:

1. increased competition in the market of educational services, growth of the innovative component in educational content and methods in accordance with the integration of education with science and practice;
2. the acceleration of the process of knowledge obsolescence and, in connection with this, the increase in the fundamentalization, speed and scale of education;
3. temporary derailment of the stability of the pedagogical process in the conditions of pedagogical innovations;
4. directing pedagogical innovations from the process and methods of acquiring knowledge to the process and methods of forming innovative abilities;
5. emergence and increasing importance of pedagogical innovations used in interdisciplinary and multidisciplinary fields;
6. transition of educational subjects from special pedagogical innovations to integrated innovations;

7. emergence, growth and role of the transfer of scientific and pedagogical innovations, application of new knowledge to the educational process, and strengthening of links between science and pedagogical practice, respectively.

Innovation, optimality, high efficiency, the possibility of creative application of innovation in public experience are important criteria of innovative activity.

Innovation is an equally important criterion for scientific pedagogical research and advanced pedagogical experiences. For a teacher who wants to implement innovative activities, it is important to determine what is the essence of the proposed innovation and what is its level of innovation. Based on the psychological characteristics and desire of each individual teacher, it is necessary to involve him in innovative activities, because for someone it is new, for someone else it may not be so.

From the efficiency criteria of pedagogical innovations, optimality refers to the use of resources and efforts of educators and learners to achieve results. The least physical, mental and time consumption in the application of pedagogical innovations to the educational process and achieving high results means its optimality.

The effectiveness of innovation is a necessary criterion for evaluating the importance of new methods and ways of education in the formation of personality, indicating the stability of the positive results obtained in the teacher's activity, technological measurement, observability and confirmation of the results, uniformity in their description and understanding.

The possibility of creative application of the innovation in a broad experience - as a criterion for evaluating pedagogical innovations, provides an opportunity to establish specific reasons for the limited use of the pedagogical innovation due to the complexity of the technical support or the specificity of the teacher's activity.

The initial stage of creative implementation of innovation in pedagogical experience is checked in the work of individual teachers, it is recommended for public use after it is tested and evaluated honestly. The above-mentioned criteria for evaluating pedagogical innovations and their application skills form the basis of pedagogical creativity.

According to the researches of foreign and our republican scientists, knowledgeably chosen innovation always significantly increases the effectiveness of the teacher's practical work, the personal development of students and educational achievements. In general, it is possible to assess the effect of one or another innovation introduced into the educational process on the effectiveness and quality of the educational process based on the following criteria for evaluating the effectiveness of the educational institution as a modern socio-educational institution:

- maqsad va natijalarning mosligi;
- tayanch me'yor sifatida bitiruvchilar tomonidan davlat ta'lim standartini o'zlashirilganlik darajasi;
- ta'lim-tarbiya darajasi va sifati;
- a'lochilar soni;
- turli sabablar bilan o'qishdan chetlashtirilganlar soni;
- ta'lim muassasasining aholi va pedagogik jamoa orasidagi mavqei;
- uzluksiz ta'lim tizimining keyingi turiga o'qishga kirganlar soni;
- bitiruvchilar orasidan etishib chiqqan mashhur kishilar soni.

Olimlar tomonidan o'tkazilgan tadqiqotlarda ta'kidlanishicha, pedagogik innovatsiyalarning, odatda, zaruriy kasbiy ekspertiza va tajriba-sinovdan o'tazilmasligi; ayrim innovatsiyalarni oldindan texnik, tashkiliy, psixologik, shaxsiy tayyorlanmaganligi; ta'lim muassasasida innovatsion muhitning mavjud emasligi ko'p hollarda yangiliklar amalga oshirilmay qolayotganligiga sabab bo'lmoqda. Bundan tashqari, ko'plab

o'qituvchilarning pedagogik innovatsiyalar haqida kam axborotga ega ekanligi, innovasion jaryonda ishtirok etish va, ayniqsa, uni tashkil etishga metodik tayyorlanmaganligi, ayrim o'qituvchilarning yangilikka «qarshilik ko'rsatishi» ham pedagogik innovatsiyalarni ta'lim jarayonida qo'llash jadalligini susaytiradi. Bunday vaziyatdan chiqishning yo'li pedagogika OTMlari ta'lim-tarbiya jarayonida bo'lajak o'qituvchilarni innovatsion-pedagogik faoliyatga tayyorgarligini shakllantirishdir.

References.

1. Tojiboyev BT, Yusupova NX Liquid composite heat-insulating coatings and methods of determining their heat transfer coefficient //Oriental renaissance: Innovative, educational, natural and social sciences. - 2021. - T. 1. – No. 10. - S. 517-526.
2. Kasimova MY, Yusupova NX On a property of fractional integro-differentiation operators in the kernel of which the meyer function //Scientific-technical journal. - 2020. - T. 24. – no. 4. – S. 48-50.
3. Kasimova MY, Yusupova NX, Kasimova ST On the uniqueness of the solution of a two-point second boundary value problem for a second-order simple differential equation solved by the Bernoulli equation //ACADEMICIA: An International Multidisciplinary Research Journal. - 2021. - T. 11. – no. 9. - S. 969-973.
4. Tojiboyev BT, Yusupova NX CREATION AND APPLICATION OF HEAT-RETAINING MATERIALS FROM LOCAL RAW MATERIALS ON THE BASIS OF INNOVATIVE TECHNOLOGIES //Oriental renaissance: Innovative, educational, natural and social sciences. - 2022. - T. 2. – no. 4. – S. 95-105.
5. Kosimova M. Y., Yusupova NX, Kosimova ST Bernoulli tenglamasiga keltirilib echiladigan ikkinchi tartiblis oddy differential tenglama uchun Uchinchi chegaraviy masala // Oriental renaissance: Innovative, educational, natural and social sciences. - 2021. - T. 1. - no. 10. - S. 406-415.
6. Yusupova N. X. The Role of Tests in Determining the Mathematical Ability of Students //Central Asian Journal Of Mathematical Theory And Computer Sciences. – 2021. – T. 2. – №. 12. – C. 25-28.
7. Qosimova, S. T. (2021). Two-point second boundary value problem for a quadratic simple second-order differential equation solved by the bernoulli equation. *Innovative Technologica: Methodical Research Journal*, 2(11), 14-19.
8. Yakubjanovna, Q. M. (2022). Some Methodological Features of Teaching the Subject «Higher Mathematics» in Higher Educational Institutions. *Eurasian Journal of Physics, Chemistry and Mathematics*, 4, 62-65.
9. Kosimova, MY (2022). USE OF INTERDISCIPLINARY CONTINUITY IN IMPROVING THE QUALITY OF STUDENT EDUCATION. *International Journal of Theoretical and Applied Research* , 2 (2), 57-64.
10. Kosimova, MY, & Kh, YN SOLVING HIGHER-ORDER DIFFERENTIAL EQUATIONS USING THE METHOD OF ORDER REDUCTION. *Chief Editor* .
11. Azizov, M., & Rustamova, S. (2019). The Task of Cauchy for ordinary differential equation of first order which refers to equation of Bernoulli. *Scientific journal of the Fergana State University* , 2 (1), 13-16.
12. Azizov, MS, & Rustamova, ST (2017). Solving higher-order differential equations by deducing the Bernoulli equation. *Turin Polytechnic University in Tashkent* , 61.
13. Rashidjon R., Sattorov A. Optimal Quadrature Formulas with Derivatives in the Space //Middle European Scientific Bulletin. – 2021. – T. 18. – C. 233-241.
14. Расулов Р., Сатторов А., Махкамова Д. Вычисление Квадрат Нормы Функционала Погрешности Улучшенных Квадратурных Формул В Пространстве //CENTRAL ASIAN JOURNAL OF MATHEMATICAL THEORY AND COMPUTER SCIENCES. – 2022. – Т. 3. – №. 4. – С. 114-122.

15. Jamshid Ismoiljonovich Fayzullayev, Abdusalom Mutalipovich Sattorov AXBOROT VA PEDAGOGIK TEXNOLOGIYALAR INTEGRATSIYASI ASOSIDA TEXNIKA OLIY TA'LIM MUASSASALARI TALABALARINING KASBIY KOMPETENTLIGINI RIVOJLANTIRISH // Scientific progress. 2021. №7.
16. Sattorov A. M., Qo'Ziyev S. S. MATEMATIKA FANI O'QITUVCHILARINI TAYYORLASHDA FANLARARO INTEGRATSIYANING ASOSLARI //Scientific progress. – 2021. – T. 2. – №. 7. – C. 322-329.
17. Nazarova, G. (2021). METHODS OF DIRECTING ECONOMICS TO SCIENTIFIC RESEARCH ACTIVITIES. CURRENT RESEARCH JOURNAL OF PEDAGOGICS (2767-3278), 2(06), 90-95.
18. Nazarova, G. (2021). Modern pedagogical factors for the development of analytical thinking in future economists. ACADEMICIA: An International Multidisciplinary Research Journal, 11(3), 511-517.
19. Alimjonova, G. (2021). The need for integration of social and technical knowledge in the development of technological culture of students of higher technical educational institutions. ACADEMICIA: An International Multidisciplinary Research Journal, 11(3), 502-510.
20. Alimjonova, G. I. (2019). SOLUTION OF THE GOURSAT PROBLEM USING A TRANSFORMATION OPERATOR FOR A THIRD-ORDER PSEUDOPARABOLIC EQUATION WITH SINGULAR COEFFICIENTS. Scientific-technical journal, 22(2), 145-148.

